YOUR ATTITUDE DETERMINES YOUR ALTITUDE

NASA SUPERSTARS OF SPACEFLIGHT

Your Attitude Determines Your Altitude

Superstars of Space Flight

1. Bernard Harris, Jr. (M.D.)
2. Eileen Collins (Lt. Colonel, USAF)
3. Norman E. Thagard (M.D.)
4. Sid Gutierrez (Colonel, USAF)
5. Mae Jemison (M.D.)
6. Franklin Chang-Díaz (Ph.D.)
7. Ellen Ochoa (Ph.D.)
8. Frederick Gregory (Colonel, USAF)
10. Kathryn Sullivan (Ph.D.)
11. Guion Bluford, Jr. (Colonel, USAF)
12. Neil Armstrong
13. Alan B. Shepard, Jr. (Rear Admiral, USN, Ret.)
14. Sally Ride (Ph.D.)
15. Edward White II (Lt. Colonel, USAF)

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Poster Highlights

The National Aeronautics and Space Administration (NASA) is composed of a diverse group of men and women at NASA Headquarters and the Agency's ten field installations around the country. NASA, however, does not accomplish its mission alone, but in partnership with large and small contractors, members of the academic community, other Federal, State, and local agencies, and other space agencies from nations around the globe. Together, these entities form a comprehensive, highly skilled team that is dedicated to providing high-quality, technologically superior products and services to its customers. NASA's highly skilled workforce, including scientists, engineers, technicians, and administrative and support professionals, and its world-class facilities represent the backbone of the Nation's civil research and development capabilities in aeronautics and space.

The outcomes of NASA's activities contribute significantly to the achievement of the Nation's science and technology goals and priorities. An essential outcome is Educational Excellence, which states: *We involve the educational community in our endeavors to inspire America's students, create learning opportunities, and enlighten inquisitive minds.*

This is the second in a series of posters designed to encourage and inspire students and teachers to consider the expanded opportunities that await those who prepare themselves educationally as they pursue their dreams. As you review the brief biographical information, it will be clear that the diversity of NASA's astronaut crews has fostered the Agency's preeminence in human endeavors in space.

The astronauts highlighted on this poster were selected for the unique accomplishments and leadership they brought to the Nation's human spaceflight endeavors. The contributions of these astronauts represent the theme of this poster series—"Your Attitude Determines Your Altitude"—a message to students and teachers of all ethnic origins.

Two of the astronauts featured on this poster (Edward White and Ellison Onizuka) died while performing spaceflight activities to expand our understanding of the universe. Their respective family members have provided information that enhanced the development of this poster. Additional information about the missions flown by the astronauts represented on this poster, the NASA Strategic Plan, and other activities about the Agency can be accessed on the Internet at the following World Wide Web sites:

http://www.nasa.gov
http://shuttle.nasa.gov
http://spacelink.msfc.nasa.gov
http://www.jsc.nasa.gov/Bios/

About the Artist

Alexander Bostic, an African-American artist, received a bachelor's degree in fine arts and illustration from Pratt Institute in Brooklyn New York. He has been a professional illustrator for 18 years. He currently is an assistant professor at the Virginia Commonwealth University School of the Arts in Richmond, Virginia.

About the Classroom

The classroom scene is a composite of students from Jefferson Junior High School, which is located in southwest Washington D.C. The students and their career goals are as follows: Christopher Ackerman (seventh grade), computer analyst; Richard Deheart (ninth grade), robotics engineer; Priscilla Sanjines (seventh grade), pediatrician; Wei Tam (seventh grade) doctor; Melinda Turner (seventh grade), pediatric surgeon; and Charise Willis (seventh grade), teacher.

NASA Headquarters has a close working relationship with the staff and students of this school.

A. Priscilla Sanjines
B. Richard Deheart
C. Wei Tam
D. Charise Willis
E. Melinda Turner
F. Christopher Ackerman

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Space Vehicles

Thirty years after the Mercury astronauts made their brief forays into the new ocean of space, Earth orbit has become a busy arena of human activity. In that time, nearly 300 people have traveled into orbit on U.S. spacecraft. The first astronauts went alone, stuffed into capsules barely large enough for their bodies, eating squeeze-tube food and peering out at the Earth through tiny portholes. Their flights lasted only a matter of hours. Today, we routinely launch seven people at a time to spend a week living, working, and exploring on board the Space Shuttle.

The history of space flight has not only seen an increase in the numbers of people traveling into orbit, but a marked improvement in the vehicles. Each successive spacecraft, from Mercury through Apollo and the Space Shuttle, has been larger, more comfortable, more capable. Scientists working inside the Shuttle's Spacelab have many of the comforts of a laboratory on Earth, none of which were possible 30 years ago.

Below are several of the prominent space vehicles utilized by NASA.

1961–63

Project Mercury

Number of People Flown: 6

Highlight: Carried the first American in space; first American in orbit

1965–66

Project Gemini

Number of People Flown:20

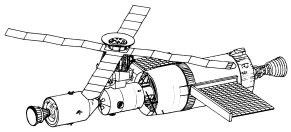
Highlight: First orbital rendezvous and docking; first U.S. spacewalk

1967–72

Project Apollo

Number of People Flown:33

Highlight:Carried first humans to leave Earth orbit; first human landing on the Moon

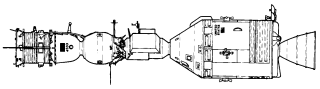


1973–74

Skylab

Number of People Flown: 9

Highlight: Longest-duration space flights in U.S. history



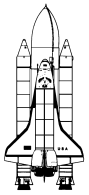
1975

Apollo-Soyuz Test Project

Number of People Flown: 5

Total Time in Space:9 days

Highlight: First international space mission



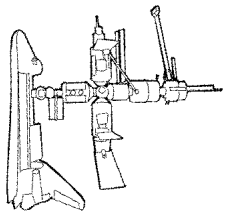
1981–Present

Space Shuttle

Number of People Flown:432

(as of April 1996)

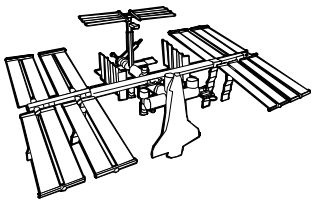
Highlight: First reusable spacecraft



1995

Mir-Shuttle Docking

Highlight: On June 29, 1995, the Space Shuttle *Atlantis* made history when it docked with the Russian *Mir* space station. The STS-71 mission marked the first time a U.S. spacecraft linked up in orbit with another spacecraft since the Apollo-Soyuz Test Project.



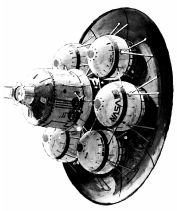
International Space Station

Artist Concept

Assembly Complete:2002

Number of Crew:6 permanent members

Highlight: First global partnership mission for an orbiting science platform; capable of performing long-duration research in microgravity and life sciences in a nearly gravity-free environment. Currently designed for a 15-year mission.



Future

Moon/Mars

Artist Concept

We seek sustained human presence in the Solar System. Preceding human exploration, robotic explorers will map the Moon, Mars, and asteroids. Human exploration will rest upon a foundation of greatly increased commercial development of space, made possible by easier access and new markets.

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Biographies

Neil Armstrong

Armstrong was born in Auglaize County, Ohio. He received a bachelor of science degree in aeronautical engineering from Purdue University in 1955 and a master of science in aerospace engineering from the University of Southern California in 1970. Armstrong was backup command pilot for Gemini 5, command pilot for Gemini 8, backup command for Gemini 11 and Apollo 8, and commander for Apollo 11. **He was the first human to land a craft on the Moon and the first to walk on the Moon.**

Guion Bluford, Jr.
(Colonel, USAF)

Colonel Bluford was born in Philadelphia, Pennsylvania. He received a bachelor of science degree in aerospace engineering from Pennsylvania State University in 1964, a master of science with distinction in aerospace engineering from the Air Force Institute of Technology in 1974, a doctor of philosophy in aerospace engineering with a minor in laser physics from the Air Force Institute of Technology in 1978, and a master of business administration from the University of Houston, Clear Lake, in 1987. Bluford became an astronaut in August 1979. He served as mission specialist for STS-8, becoming **the first African American in space.** He also was a mission specialist on STS 61-A in October 1985, STS-39 in April 1991, and STS-53 in December 1992. He has logged more than 688 hours in space. Colonel Bluford enjoys reading. His favorite quote is: "Aim high—if you can dream it, you can achieve it."

Franklin Chang-Díaz (Ph.D.)

Dr. Chang-Díaz was born in San José, Costa Rica. He received a bachelor of science degree in mechanical engineering from the University of Connecticut in 1973 and a doctorate in applied plasma physics from MIT in 1977. Chang-Díaz became an astronaut in August 1981 and was **the first Hispanic to fly aboard the Shuttle** in 1986. He has flown on four Space Shuttle missions and has logged more than 656 hours in space. He was a crew member on STS 61-C in 1986, STS-34 in 1989, STS-46 in 1992, and STS-60 in 1994; he served as payload commander on STS-75 in 1996. Dr. Chang-Díaz enjoys scuba diving, flying, and music. His favorite quote is: "A thousand-mile journey begins with the first step."

Eileen Marie Collins
(Lt. Colonel, USAF)

Lt. Colonel Collins was born in Elmira, New York. She received a bachelor of arts degree in mathematics and economics from Syracuse University in 1978, a master of science in operations research from Stanford in 1986, and a master of arts in space systems management from Webster University in 1989. Collins became an astronaut in July 1991. She served as pilot on STS-63, the first flight of the new joint Russian-American Space Program, in February 1995. **She was the first woman pilot of a Space Shuttle.** She currently works in Mission Control as a spacecraft communicator. Lt. Colonel Collins enjoys running, golf, swimming, reading, and astronomy. Her favorite quote is: "Dream the impossible dream!"

Frederick Gregory
(Colonel, USAF)

Colonel Gregory was born in Washington, District of Columbia. He received a bachelor of science degree from the U.S. Air Force Academy in 1964 and a master's degree in information systems from George Washington University in 1977. Gregory was selected as an astronaut in January 1978, flew on three Space Shuttle missions, and logged more than 455 hours in space. On his first flight in 1985, he was the pilot for mission STS 51-B (Spacelab-3). He was commander of his next two space flights: STS-33 on in 1991 and STS-44 on also in 1991. **He was the first African American to pilot the Space Shuttle,** and on his second mission, he was **the first African American to command any space vehicle.** Gregory is currently working as Associate Administrator for the Office of Safety and Mission Quality at NASA Headquarters. Colonel Gregory enjoys reading, computer technology, his grandchildren, and sports, such as white water rafting, snowmobiling, water and snow skiing, mountain climbing, and weight conditioning. His favorite quote is "Children are only as strong as the sum of their home, school, church, and neighbors."

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Biographies

Sid Gutierrez (Colonel, USAF)

Colonel Gutierrez was born in Albuquerque, New Mexico. He received a bachelor of science degree in aeronautical engineering from the U.S. Air Force Academy in 1973 and a master of arts in management from Webster College in 1977. **He was the first Hispanic to pilot the Space Shuttle.** Gutierrez became an astronaut in June 1985 and flew two Space Shuttle missions—as pilot on the STS-40 Spacelab Life Sciences (SLS-1) mission in 1991 and as **the first Hispanic to command** on the STS-59 Space Radar Laboratory (SRL-1) in 1994. Currently, he is a manager in the Exploratory Systems Development Center at Sandia National Laboratories. Colonel Gutierrez enjoys camping and family basketball. His favorite quote is: "Be true unto thy self."

Bernard Harris, Jr., (M.D.)

Dr. Harris was born in Temple, Texas. He received a bachelor of science degree in biology from University of Houston in 1978 and a doctorate in medicine from Texas Tech School of Medicine in 1982. He completed a residency in internal medicine at the Mayo Clinic in 1987 and trained as a flight surgeon at the Aerospace School of Medicine at Brooks Air Force Base in San Antonio, in 1988. Dr. Harris is now Staff Vice President of Operations for SPACEHAB Inc., Houston, Texas. Harris became an astronaut in July 1991. He was a mission specialist on STS-55 (Spacelab D-2) in 1991, conducting a variety of research experiments in physical and life sciences. In February 1995, Dr. Harris was the payload commander on STS-63, the first flight of the new joint Russian-American Space Program; **his spacewalk made him the first African American to perform an extravehicular activity.** Dr. Harris enjoys music, sailing, weightlifting, and running. His favorite quote is: "The key to achievement is education and the ability to dream."

Mae Jemison (M.D.)

Dr. Jemison was born in Decatur, Alabama, but considers Chicago her hometown. She received a bachelor of science degree in chemical engineering (fulfilling the requirements for a bachelor of arts in African and Afro-American studies) from Stanford University in 1977. Her 1981 doctorate in medicine is from Cornell University. Jemison was selected for the astronaut program in June 1987. She was the science mission specialist on STS-47 (Spacelab-J) in September 1992, which was a cooperative mission between the United States and Japan. In completing her first space flight, she logged more than 190 hours in space and became **the first African-American female in space.** She is currently a professor of environmental studies at Dartmouth and works privately to advance technologies in developing countries. Dr. Jemison enjoys jazz, modern and African dancing, mystery novels, gardening, travel, and cats. Her favorite quote is by Alice Walker: "It is the nature of this flower to bloom."

Ellen Ochoa (Ph.D)

Dr. Ochoa was born in Los Angeles, California. She received a bachelor of science in physics from San Diego State University in 1980, and then a master of science and doctorate in 1981 and 1985, respectively, both in electrical engineering from Stanford University. Ochoa became an astronaut in July 1991. In 1993, she flew as a mission specialist on STS-56, becoming **the first Hispanic female to fly on board the Shuttle.** In 1994, she flew as payload commander on STS-66. She has logged more than 484 hours in space. Dr. Ochoa is a classical flutist and also enjoys volleyball and traveling. Her favorite quote is by Ralph Waldo Emerson: "Nothing great was ever achieved without enthusiasm."

Ellison Onizuka
(Lt. Colonel, USAF)

Ellison Onizuka was born in Kealakekua, Hawaii. He received bachelor and master of science degrees in aerospace engineering in June and December 1969, respectively, from the University of Colorado. He died January 28, 1986, in the *Challenger* explosion. Onizuka was selected as an astronaut candidate in January 1978. He was a mission specialist on STS 51-C and on STS 51-L (*Challenger*), which exploded 73 seconds after launch. **He was the first Asian-American astronaut to fly in space.** Onizuka enjoyed fishing, playing athletic sports, jogging, and working with youth organizations. His favorite quote was: "Your vision is not limited by what your eye can see, but by what your mind can imagine. Every generation has an obligation to free men's minds for a look at new worlds—to look out from a higher plateau than the last generation. Make your life count and the world will be a better place because you tried."

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Biographies

Sally Ride (Ph.D)

Dr. Ride was born in Los Angeles, California. From Stanford University, she received a bachelor of science in physics and a bachelor of arts in English in 1973, and then master of science and doctorate degrees in physics in 1975 and 1978, respectively. Ride was selected as a candidate by NASA in January 1978 and became an astronaut in August 1979. She was **the first American woman in space** serving as a mission specialist on STS-7 in June 1983. She also flew on STS 41-G in October 1984. She was in training for STS 61-M at the time of the *Challenger* accident. She served on the Presidential Commission investigating the accident. She is now a professor of physics at the University of California at San Diego. Dr. Ride enjoys tennis, running, and stamp collecting, and she has written three science books for children.

Alan B. Shepard, Jr.
(Rear Admiral, USN, Ret.)

Shepard was born in East Derry, New Hampshire. He received a bachelor of science degree from the U.S. Naval Academy in 1944, an honorary master of arts from Dartmouth in 1962, an honorary doctorate of science from Miami of Ohio in 1971, and an honorary doctorate of humanities from Franklin Pierce College in 1972. Shepard was one of the Mercury astronauts named by NASA in April 1959. **He was the first American to journey into space.** On May 5, 1961, in the *Freedom 7* spacecraft, Shepard was launched by a Redstone vehicle on a ballistic trajectory suborbital flight, carrying him to an altitude of 116 statute miles and to a landing point 302 statute miles down the Atlantic Missile Range. His second space flight was as spacecraft commander on Apollo 14 in 1971. He logged more than 216 hours in space, of which 9 hours and 17 minutes were spent in lunar surface extravehicular activity. Admiral Shepard enjoys golfing and snow skiing.

Kathryn Sullivan (Ph.D.)

Dr. Sullivan was born in Paterson,New Jersey, but considers Woodland Hills, California, her hometown. She earned a bachelor of science degree in earth sciences from the University of California at Santa Cruz in 1973 and a doctorate in geology from Dalhousie University (Halifax, Nova Scotia) in 1978. She also has received numerous honorary degrees. Sullivan was selected by NASA in January 1978 and became an astronaut in August 1979. A veteran of three space flights, she was a mission specialist on STS 41-G in 1984, STS-31 in 1990, and STS-45 in 1992. **She was the first** She is now an oceanography officer in the U.S. Naval Reserve. Dr. Sullivan enjoys squash, racquetball, biking, and reading. Her favorite quote by DaVinci is: "When once you have tasted flight, you will always walk the earth with your eyes turned skyward—for there you have been, and there you will always be."

Norman E. Thagard (M.D.)

Dr. Thagard was born in Marianna, Florida, but considers Jacksonville his hometown. He attended Florida State University, where he received bachelor and master of science degrees in engineering science in 1965 and 1966, respectively. He received a doctor of medicine degree from the University of Texas Southwestern Medical School in 1977. Thagard was selected as an astronaut candidate in January 1978. A veteran of five space flights, he has logged more than 140 days in space. He was a mission specialist on STS-7 in 1983, STS 51-B in 1985, and STS-30 in 1989. He was the payload commander on STS-42 in 1992 and was **the first American to serve as cosmonaut/researcher on the Russian Mir 18 mission.** He is now visiting professor of engineering at Florida A&M University, Florida State College of Engineering. Dr. Thagard enjoys analog and digital electronic design and high-fidelity sound reproduction. His favorite quote is: "Whatever you do, be the best you can be."

Edward White II
(Lt. Colonel, USAF)

Colonel White was born in San Antonio, Texas. He received a bachelor of science degree from the U.S. Military Academy in 1952, a master of science in aeronautical engineering from the University of Michigan in 1959, and an honorary doctorate in astronautics from the University of Michigan in 1965. He died January 27, 1967, in the Apollo 1 fire at Cape Kennedy during a pre-flight test. White was selected as an astronaut in September 1962. He was pilot of Gemini 4 in June 1965 and backup command pilot for Gemini 7. **He was the first American to perform extravehicular activity (EVA)**—a spacewalk during his Gemini 4 flight. He said that he felt "red, white, and blue all over" after his spacewalk, which was also the world's first self-propelled EVA. Lt. Colonel White enjoyed squash, handball, jogging, and speaking to young people about space travel. His favorite quote was: "No one is beat 'til he quits, no one is through 'til he stops, no matter how hard failure hits, no matter how often he drops, a fellow's not down 'til he lies in the dust and refuses to rise. Fate can slam him and bang him around, and batter his frame 'til he's sore, but she never can say that he's downed, while he bobs up serenely for more. A fellow's not dead 'til he dies, nor beat 'til he no longer tries."

CAREER PATHS

MATHEMATICS
PHYSICAL SCIENCES
ENGINEERING
COMPUTER SCIENCES

AIM HIGH

Whatever you set your mind on, there is much you can accomplish. To prepare yourself, you must take the time to find out the skills you will need to succeed at your goals. Take as many courses as you can that will teach you the skills you need, and take every opportunity to practice those skills. Participating in summer jobs or co-op experiences, tutoring others, or taking advanced classes are only a few of the ways to gain more experience and practice in the skills you are trying to develop.

Look for opportunities to explore possible career choices during high school and college through summer co-op or internship programs, summer jobs, career days, or volunteer work. Participation in extracurricular activities, such as after-school clubs, summer camps, interviews with experts in your fields of interest, and lectures/symposia, will enhance your learning and provide you with unique experiences.

Seek career information from your school counselors, teachers, parents, family friends, and role models. In addition, you may wish to contact a local career center, vocational-technical center, or community college. The more information you can collect on the types of work you would like to do, the better you can prepare yourself during high school and college with the subjects you need to learn for your future.

STARTING OUT

MATHEMATICS

If you like working with numbers or solving problems using numbers, mathematics is a possible college major for you.

PHYSICAL SCIENCES

This is a broad range of subjects, including physics, chemistry, and biology. If you like to ask questions and think about why things are the way they are in the world around us, you should explore getting a degree in one of the physical sciences.

ENGINEERING

Similar to the physical sciences, engineering includes a broad range of study disciplines. If you like to understand the way things work, or apply what you know to create practical solutions to problems, engineering may be the career for you.

COMPUTER SCIENCES

If you like to work with computers, to understand how they work, and to learn how to program them to do the things you want, computer sciences might be the field of study for you.

HIGH SCHOOL

Although academic requirements differ across colleges, the admissions requirements listed below are typical of 4-year colleges. The specific classes listed here are examples of the types of courses students can take.

COURSES

English—4 Years
Types of classes: composition, American literature, English literature, world literature

Mathematics—3 to 4 Years
Types of classes: algebra I, algebra II, geometry, trigonometry, precalculus, calculus

History and Geography—2 to 3 Years
Types of classes: geography, U.S. history, U.S. Government, world history, world cultures, civics

Laboratory Science—2 to 3 Years
Types of classes: Earth and space science, life sciences, physical sciences

Foreign Language—2 to 3 Years
Types of classes: French, German, Spanish, Latin, Russian, Japanese

Visual and Performing Arts—1 to 3 Years
Types of classes: art, dance, drama, music

Appropriate Electives—1 to 3 Years
Types of classes: economics, psychology, statistics, computer science, communications

COLLEGES

There are two basic types of colleges that offer academic programs:

1. **Two-Year Colleges—**These schools offer 2-year programs leading to a certificate, an associate of arts (A.A.) degree, an associate of science (A.S.) degree, or an associate of applied science (A.A.S.) degree.
2. **Four-Year Colleges and Universities—**These schools usually offer a bachelor of arts (B.A.) or bachelor of science (B.S.) degree. Some also offer graduate and professional degrees.

Colleges look for breadth as well as mastery of basic mathematics, science, English, computer studies, and communication skills. Among your electives, you should consider taking more than 2 years of a foreign language, world history, international studies, economics, art, public speaking, writing, and other humanities courses.

FULFILLING A DREAM:
Preparation Is the key

At the very least, to do well in the career of your choice, you must prepare yourself in the following areas:

1. **Mastery of skills.** A mastery of the skills required by the courses you will be taking to get a college degree. The type of degree you are seeking will determine the subject areas you must concentrate on, as well as recommendations for elective coursework.
2. **Facility with computers.** You should have the ability to work with spreadsheet, graphics, and word-processing software, as well as a familiarity with using the Internet and electronic mail.
3. **Good writing skills.** This ability cannot be emphasized enough. You need to write well to get good jobs, to communicate with the people with whom you work, to write papers for publication, or to perform any number of other important activities that your job will require.
4. **Effective oral communication.** As with good writing skills, your ability to communicate effectively cannot be emphasized enough. You must be able to communicate your thoughts and ideas clearly, and in a variety of settings, such as meetings, formal presentations, or lectures.

CAREER INFORMATION

At your school or local library, explore career books or look at the following web sites to help you discover the many careers open to you. Can you list 10 different careers in the area that interests you?

Some Internet sites that contain useful information as you proceed with your career plans in the areas listed above are:

http://www.acs.org/
http://www.aaas.org/
http://www.maa.org/
http://www.nspe.org/
http://www.asee.org

General career information can be accessed by using web search engines, such as:

http://www.yahoo.com/
http://www.excite.com/
http://www2.infoseek.com/
http://webcrawler.com/

Use your imagination, and never stop learning!

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NASA Resources for Educators

NASA's Central Operation of Resources for Educators (CORE) was established for the national and international distribution of NASA-produced educational materials in audiovisual format. Educators can obtain a catalogue of these materials and an order form by written request, on school letterhead to:

NASA CORE
Lorain County Joint Vocational School
15181 Route 58 South
Oberlin, OH 44074
Phone (216) 774-1051, Ext. 293 or 294

Teacher Resource Center Network

To make additional information available to the education community, the NASA Education Division has created the NASA Teacher Resource Center (TRC) network. TRCs contain a wealth of information for educators: publications, reference books, slide sets, audio cassettes, videotapes, telelecture programs, computer programs, lesson plans, and teacher guides with activities. Teachers may preview, copy, or receive NASA materials at these sites. Because each NASA Field Center has its own areas of expertise, no two TRCs are exactly alike. Phone calls are welcome if you are unable to visit the TRC that serves your geographic area. A list of the centers and the geographic regions they serve are:

AK, AZ, CA, HI, ID, MT, NV, OR, UT, WA, WY
NASA Teacher Resource Center
Mail Stop T12-A
NASA Ames Research Center
Moffett Field, CA 94035-1000
PHONE: (415) 604-3574

CT, DE, DC, ME, MD, MA, NH, NJ, NY, PA, RI, VT
NASA Teacher Resource Laboratory
Mail Code 130.3
NASA Goddard Space Flight Center
Greenbelt, MD 20771-0001
PHONE: (301) 286-8570

CO, KS, NE, NM, ND, OK, SD, TX
NASA Teacher Resource Room
Mail Code AP-2
NASA Johnson Space Center
2101 NASA Road One
Houston, TX 77058-3696
PHONE: (713) 483-8696

FL, GA, PR, VI
NASA Educators Resource Laboratory
Mail Code ERL
NASA Kennedy Space Center
Kennedy Space Center, FL 32899-0001
PHONE: (407) 867-4090

KY, NC, SC, VA, WV
Virginia Air and Space Museum
NASA Teacher Resource Center for
NASA Langley Research Center
600 Settler's Landing Road
Hampton, VA 23669-4033
PHONE: (804) 727-0900 x 757

IL, IN, MI, MN, OH, WI
NASA Teacher Resource Center
Mail Stop 8-1
NASA Lewis Research Center
21000 Brookpark Road
Cleveland, OH 44135-3191
PHONE: (216) 433-2017

AL, AR, IA, LA, MO,TN
U.S. Space and Rocket Center
NASA Teacher Resource Center for
NASA Marshall Space Flight Center
P.O. Box 070015
Huntsville, AL 35807-7015
PHONE: (205) 544-5812

MS
NASA Teacher Resource Center
Building 1200
NASA John C. Stennis Space Center
Stennis Space Center, MS 39529-6000
PHONE: (601) 688-3338

Serving inquiries related to space and planetary exploration
NASA Teacher Resource Center
JPL Educational Outreach
Mail Stop CS-530
NASA Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109-8099
PHONE: (818) 354-6916

CA cities near the center
Public Affairs Office (Trl. 42)
NASA Teacher Resource Center
NASA Dryden Flight Research Center
Edwards, CA 93523-0273
PHONE: (805) 258-3456

VA and MD's Eastern Shores
NASA Teacher Resource Lab
Education Complex—Visitor Center
Building J-1
NASA Wallops Flight Facility
Wallops Island, VA 23337-5099
PHONE: (804) 824-2297/2298

Regional Teacher Resource Centers (RTRCs) offer more educators access to NASA educational materials. NASA has formed partnerships with universities, museums, and other educational institutions to serve as RTRCs in many states. A complete list of RTRCs is available through CORE, or electronically via NASA Spacelink.

NASA Spacelink is an electronic information system designed to provide current educational information to teachers, faculty, and students. Spacelink offers a wide range of computer text files, software, and graphics related to aeronautics and space programs.

The system may be accessed by computer though direct-dial modem or the Internet.

Modem line:	(205) 895-0028
Terminal emulation:	VT-100 required
Data format:	8-N-1
Telnet:	*spacelink.msfc.nasa.gov*

Spacelink fully supports the following Internet services:

World Wide Web:	*http://spacelink.msfc.nasa.gov*
Gopher:	*spacelink.msfc.nasa.gov*
Anonymous FTP:	*spacelink.msfc.nasa.gov*
Internet TCP/IP address:	192.149.89.61

For more information, contact: Spacelink Administrator, Education Programs Office, Mail Code CL01, NASA Marshall Space Flight Center, Huntsville, AL 35812-0001.
Voice phone: (205) 961-1225
E-mail: *comments@spacelink.msfc.nasa.gov*

NASA Television (NTV) is the Agency's distribution system for live and taped programs. It offers the public a front-row seat for launches and missions, as well as informational and educational programming, historical documentaries, and updates on the latest developments in aeronautics and space science. NTV is transmitted on Spacenet 2 (a C-band satellite) on transponder 5, channel 9, 69 degrees west with horizontal polarization, frequency 3880 megahertz, audio on 6.8 megahertz; or through collaborating distance-learning networks and local cable providers.

Apart from live mission coverage, regular NASA Television programming includes a Video News File from noon to 1:00 pm, an Education File from 1:00 to 2:00 pm, and a NASA History File from 2:00 to 3:00 pm (all times Eastern). This sequence is repeated at 3:00 pm, 6:00 pm, 9:00 pm, and midnight, Monday through Friday. The NTV Education File features programming for teachers and students on science, mathematics, and technology, including the *NASA. . .On the Cutting Edge* Education Satellite Videoconference Series. The videoconferences include NASA scientists, astronauts, and education specialists presenting aeronautics and Earth & space science topics of interest to teachers and students of grades 5-12. The series is free to registered educational institutions. The videoconferences and all NASA Television programming may be videotaped for later use.

For more information on NASA Television, contact: NASA Headquarters, Code P-2, NASA TV, Washington, DC 20546-0001 Phone (202) 358-3572. NTV Home address:
http://www.hq.nasa.gov/office/pao/ntv.html

For more information about the Education Satellite Videoconference Series, contact: Videoconference Producer, NASA Teaching From Space Program, 308 CITD, Room A, Oklahoma State University, Stillwater, OK 74078-8089
E-mail: *nasaedutv@smtpgate.osu.hq.nasa.gov*

How to Access NASA Education Materials and Services, EP-329 July 1995. This brochure serves as a guide to accessing a variety of NASA materials and services for educators. Copies are available through the TRC network, or electronically via NASA Spacelink.

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